DIN EN ISO 11161:2008-01 (E)

Safety of machinery - Integrated manufacturing systems - Basic requirements (ISO 11161:2007)

Contents

Page

Foreword 4

Introduction 5

1 Scope 7

2 Normative references 7

3 Terms and definitions 8

4 Strategy for risk assessment and risk reduction 12
4.1 General 12
4.2 Specification of the limits of the IMS 12
4.3 Determination of the task 12
4.4 Identifying hazardous situations 14
4.5 Risk estimation and risk evaluation 14
4.6 Risk reduction 14

5 Risk assessment 16
5.1 Specifications of the IMS 16
5.2 Identification of hazards and hazardous situations 18
5.3 Risk estimation 19
5.4 Risk evaluation 20

6 Risk reduction 20
6.1 Protective measures 20
6.2 Validation of the protective measures 20

7 Task zone(s) 20
7.1 General 20
7.2 Determination 21
7.3 Design 21
7.4 Functional analysis 22

8 Safeguarding and span of control 22
8.1 Safeguarding of task zones 22
8.2 Span of control 23
8.3 Electrical equipment requirements 23
8.4 Modes 23
8.5 Safeguards 24
8.6 Protective measures when safeguards are suspended 24
8.7 Muting and blanking 26
8.8 Control 26
8.9 Reset of perimeter safeguarding devices 27
8.10 Start/restart 27
8.11 Emergency stop 28
8.12 Measures for the escape and rescue of trapped persons 28

9 Information for use 28
9.1 General 28
9.2 Marking 29

10 Validation of the design 29
10.1 Validation that the design meets the requirements 29
10.2 Validation of the protective measures 29

Annex A (informative) Examples of integrated manufacturing systems (IMSs) 30

Annex B (informative) Flow of information between the Integrator, user and suppliers 33

Annex C (informative) Span of control examples within an IMS 28

Annex D (informative) Temporary observation of the automatic process 32

Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 98/37/EC 42

Bibliography 43